FAI-7041240-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Crushed, Broken Limestone)

Fatal Powered Haulage Accident
May 22, 2023

Huntington Plant CS01
Central Stone Company
Hannibal, Ralls County, Missouri
ID No. 23-00079

Accident Investigators

Nicholas Dunne
Mine Safety and Health Inspector

Randal Hill
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Madisonville District
100 YMCA Drive
Madisonville, KY 42431
Mary Jo Bishop, District Manager

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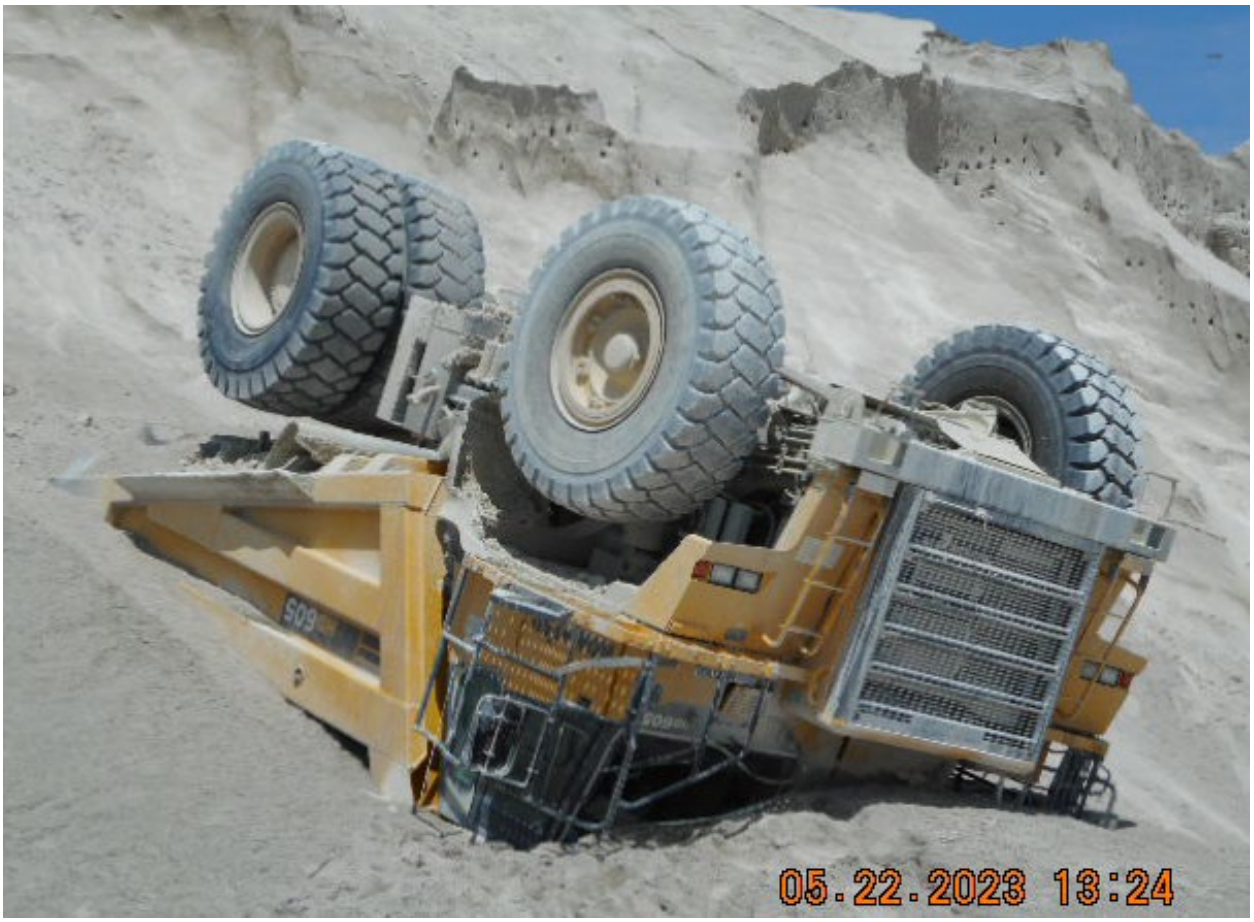


OVERVIEW

On May 22, 2023, at approximately 11:10 a.m., Darrell Huff, a 70 year-old stockpile driver with over 49 years of experience, died when the ground under his haul truck collapsed, causing the haul truck to overturn backwards, coming to rest at the base of the manufactured sand stockpile.

The accident occurred because the mine operator did not: 1) establish mining methods to ensure stability of the dump site, 2) ensure miners dumped a safe distance back from the edge of the unstable area of the stockpile, 3) conduct adequate workplace examinations, and 4) ensure mobile equipment operators wore seat belts.

GENERAL INFORMATION

Central Stone Company owns and operates the Huntington Plant CS01. The Huntington Plant CS01 is a surface crushed and broken limestone mine located in Hannibal, Ralls County, Missouri. The mine employs 20 miners and operates one nine-hour shift, five days per week. The mine drills and blasts limestone in an open pit quarry, and haul trucks transport the blasted limestone to a primary crusher plant for sizing. Manufactured sand is a byproduct of the mine's limestone production. The mine stockpiles and sells the manufactured sand.

The principal management officials at the Huntington Plant CS01 at the time of the accident were:

Ryan Lair	Superintendent
Randall Murphy	Regional Production Manager
Eric Weech	Vice President, General Manager

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on May 9, 2023. The 2022 non-fatal days lost incident rate for the Huntington Plant CS01 mine was zero, compared to the national average of 1.67 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On May 22, 2023, at 5:45 a.m., Huff started his shift by conducting a pre-operational inspection of his haul truck. At 6:13 a.m., Huff hauled his first of three loads of manufactured sand to the top of the stockpile. According to interviews, at 11:10 a.m., Rodman Chacon, Customer Truck Driver, was in the area to pick up a load of material when he saw Huff's haul truck upside down on the side of the stockpile with sand still coming down the pile (see Appendix A). Chacon pulled his truck in front of the overturned haul truck and yelled for the driver but received no response. He immediately called Ellie Lugena, Scale Operator, to report the overturned haul truck. Lugena attempted to call Lair on the citizens band (CB) radio to report the accident.

Based on interviews, Johnathan Watson, Assistant Plant Superintendent, and Anthony Harr, Plant Utility Man, heard the transmission on the CB radio and immediately started traveling to Huff's haul truck. Watson and Harr arrived and assessed Huff for vital signs and injuries, but they did not detect any vital signs. At 11:12 a.m., Lugena reached Lair on his cell phone to inform him of the accident and then called Monroe City Emergency Medical Services (EMS). Lair arrived at the overturned haul truck and was told by Watson and Harr that Huff had no vital signs.

At 11:35 a.m., Monroe City EMS arrived at the mine. At 12:07 p.m., EMS personnel extricated Huff from the haul truck. Austin Simmons, Ralls County Deputy Coroner, arrived and pronounced Huff dead at 12:18 p.m.

INVESTIGATION OF THE ACCIDENT

On May 22, 2023, at 11:27 a.m., Lair called the Department of Labor National Contact Center (DOLNCC). The DOLNCC contacted Hubert Wright, Supervisory Mine Safety and Health Inspector. Wright contacted David West, Assistant District Manager, who contacted Curtis Hardison, Staff Assistant. Hardison called Lawrence Sherrill, Supervisory Mine Safety and Health Inspector, who sent Nicholas Dunne and Randal Hill, Mine Safety and Health Inspectors, to the mine. Hardison assigned Dunne as the lead accident investigator.

At 2:30 p.m., Dunne and Hill arrived at the mine and issued an order under the provisions of Section 103(k) of the Mine Act to ensure the safety of the miners and preservation of evidence.

MSHA's accident investigation team conducted an examination of the accident scene; interviewed miners, mine management, and other relevant personnel; and reviewed conditions and work practices relevant to the accident. See Appendix B for a list of persons who participated in the investigation.

DISCUSSION

Location of the Accident

The accident occurred at the manufactured sand stockpile located approximately 1,200 feet southwest from the crushing plant. The stockpile was about 42 feet high at the location of the accident. At the base of the stockpile, a front-end loader loaded customer trucks.

Weather

The weather at the time of the accident was mostly clear, with a temperature of approximately 80 degrees Fahrenheit. Investigators determined that weather did not contribute to the accident.

Equipment Involved

The haul truck involved in the accident was a 2008 Komatsu HD605. Investigators conducted an examination of the haul truck and found no defects that contributed to the accident.

Mining Methods and Ground Conditions

Haul trucks dumped new material on the top of the stockpile by driving up the access road built into the stockpile, backing up to the berm, and dumping the load near or over the edge. According to the mine operator, Huff trained haul truck drivers to dump their loads back and forth, or left to right, on top of the stockpile in a manner that allowed the bulldozer or front-end loader to push up the material after the area was full. However, this method was not being followed at the time of the accident. Instead of filling the area on top of the stockpile, Huff dumped over the edge.

There was berm material piled at the edge of the stockpile, averaging approximately 46 inches in height on the side facing the top of the stockpile (see Appendix C). The berm material shared an outside edge with the pile itself, which had become over-steepened. As a result, the berm material was too narrow at its base to restrain or impede a haul truck. This condition was created from the front-end loader operator loading customer trucks from the toe of the stockpile, causing loose unconsolidated material to slough away from the side and top of the stockpile (see Appendix D). According to interviews, the superintendent who had driven through the area earlier in the shift made no effort to mitigate the conditions. Investigators determined that the mine operator did not establish mining methods to ensure stability of the dump site and did not ensure miners dumped a safe distance back from the edge of the unstable area of the stockpile, which contributed to the accident.

Seat Belt Use

Based on a review of the accident scene, investigators determined that Huff was not wearing his seat belt at the time of the accident. The seat belt functioned correctly when tested. Investigators determined that not wearing a seat belt contributed to the severity of the accident.

Training and Experience

Darrell Huff had over 49 years of mining experience, with all of his mining career at this mine. Huff received all training in accordance with MSHA Part 46 training regulations.

Examinations

According to the mine operator, the haul truck drivers were responsible for conducting workplace examinations at the manufactured sand stockpile, including at the dump site. The mine operator did not have a record of a workplace examination for the day of the accident; however, the record is not required to be made until the end of the shift. The workplace examination records from previous shifts did not identify this hazardous condition. Investigators determined that the workplace examinations were inadequate and contributed to the accident.

ROOT CAUSE ANALYSIS

The accident investigators conducted an analysis to identify the underlying causes of the accident. The accident investigators identified the following root causes, and the mine operator implemented the corresponding corrective actions to prevent a recurrence.

1. Root Cause: The mine operator did not establish mining methods to ensure stability of the dump site.

   Corrective Action: The mine operator has abandoned the manufactured sand stockpile from future stockpile dumping. It will only be used to loadout customer trucks from the bottom of the pile. The mine operator also developed and implemented a new written procedure to ensure stability of dump sites that includes constructing stockpiles on a solid base, and prohibiting dumping above areas where material is being removed to load customer trucks. The mine operator trained all miners on this procedure.

2. Root Cause: The mine operator did not ensure miners dumped a safe distance back from the edge of the unstable area of the stockpile.

   Corrective Action: The mine operator developed and implemented a new written procedure requiring miners to dump a safe distance back from the edge of stockpiles and the material to be pushed over the edge by a loader, bulldozer, or excavator. The mine operator trained all miners on the procedure.

3. Root Cause: The mine operator did not conduct adequate workplace examinations.

   Corrective Action: The mine operator developed and implemented a new written procedure for conducting workplace examinations in around stockpiles. The mine operator trained miners responsible for conducting workplace examinations on the procedure.

4. Root Cause: The mine operator did not ensure mobile equipment operators wore seat belts.

   Corrective Action: The mine operator retrained all miners in the requirement for seat belt usage under 30 CFR 56.14131(a).

CONCLUSION

On May 22, 2023, at approximately 11:10 a.m., Darrell Huff, a 70 year-old stockpile driver with over 49 years of experience, died when the ground under his haul truck collapsed, causing the haul truck to overturn backwards, coming to rest at the base of the manufactured sand stockpile.

The accident occurred because the mine operator did not: 1) establish mining methods to ensure stability of the dump site, 2) ensure miners dumped a safe distance back from the edge of the unstable area of the stockpile, 3) conduct adequate workplace examinations, and 4) ensure mobile equipment operators wore seat belts.

Approved by:

_____ _____

Mary Jo Bishop Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Central Stone Company.

   A fatal accident occurred on May 22, 2023, at approximately 11:10 a.m. This order is being issued under the authority of the Federal Mine Safety and Health Act of 1977, under Section 103(k) to insure the safety of all persons at the mine and requires the operator to obtain the approval of an authorized representative of MSHA of any plan to recover any person in the mine or to recover the mine or affected area. This order prohibits any activity in the affected area. The operator is reminded of the obligation to preserve all evidence that would aid in investigating the cause or causes of the accident in accordance with 30 CFR 50.12.

2. A 104(d)(1) citation was issued to Central Stone Company for a violation of 30 CFR 56.9304(b).

   A fatal accident occurred on May 22, 2023, when the ground collapsed beneath a haul truck, causing it to overturn backwards, coming to rest at the base of a manufactured sand stockpile. Material was being dumped over the edge of the stockpile at a location where there was evidence that the ground may fail to support loaded haul trucks. The mine operator did not ensure miners dumped material a safe distance back from the edge of the unstable area. The mine operator engaged in aggravated conduct constituting more than ordinary negligence because mine management had been in the area numerous times prior to the accident while haul trucks dumped over the edge and a front-end loader loaded material out of the stockpile's toe and did not correct the hazard. The superintendent who had driven through the area earlier in the shift and made no effort to ensure that haul trucks dumped a safe distance back from the edge of the unstable area. This violation is an unwarrantable failure to comply with a mandatory standard.

3. A 104(d)(1) order was issued to Central Stone Company for a violation of 30 CFR 56.3130.

   A fatal accident occurred on May 22, 2023, when the ground collapsed beneath a haul truck causing it to overturn backwards, coming to rest at the base of a manufactured sand stockpile. The mine operator did not use mining methods to maintain bank or slope stability of the dump stockpile. The mine operator's practice of loading customer trucks involved digging out the toe of the stockpile where haul trucks dumped above. This practice caused loose, unconsolidated material to slough away from the side and top of the stockpile, creating instability in the stockpile's bank and slope. This condition had been allowed to develop and deteriorate for months. The mine operator engaged in aggravated conduct constituting more than ordinary negligence because mine management had been in the area numerous times prior to the accident and did not correct the hazard. The superintendent who had driven through the area earlier in the shift and made no effort to ensure bank or slope stability. This violation is an unwarrantable failure to comply with a mandatory standard.

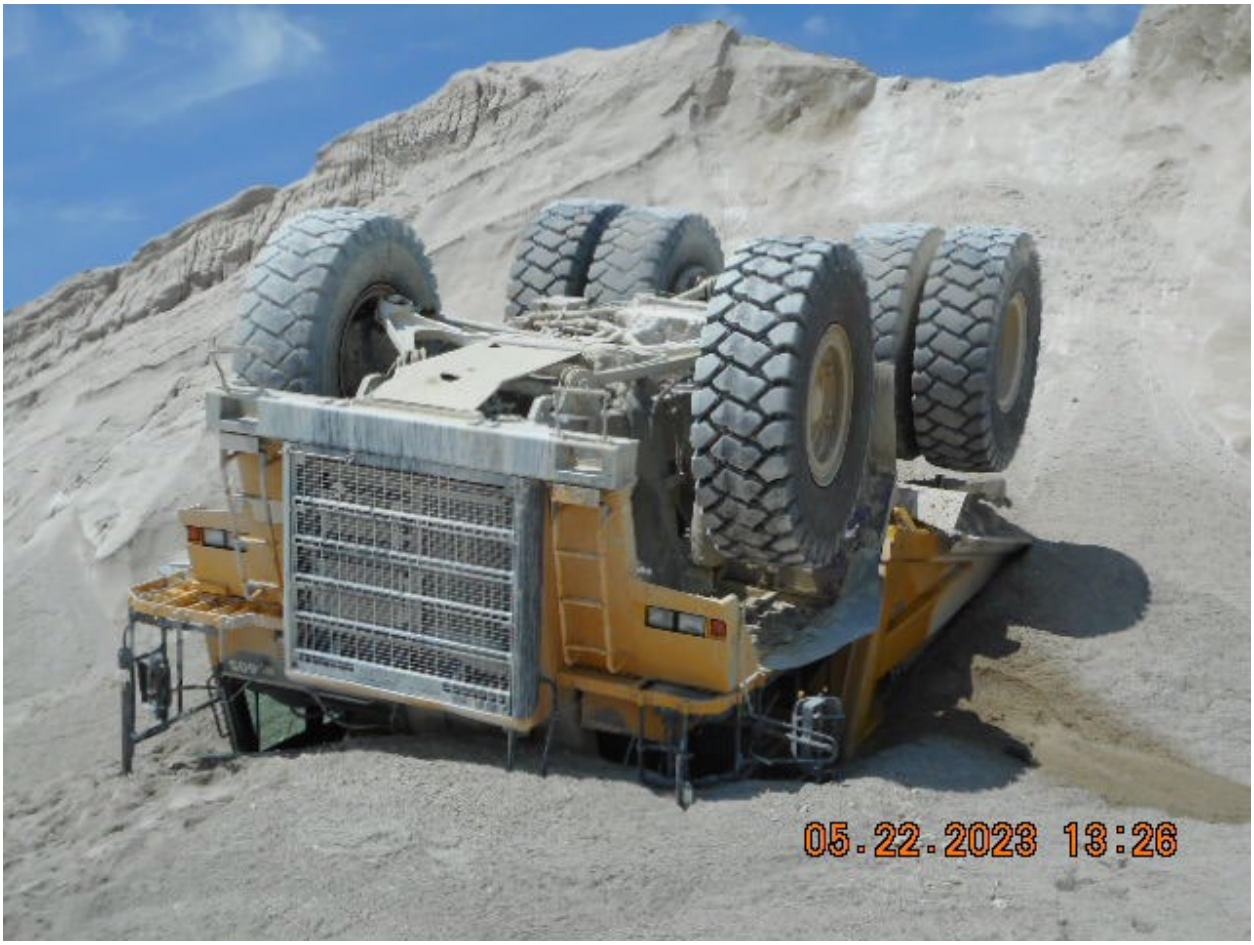
4. A 104(d)(1) order was issued to Central Stone Company for a violation of 30 CFR 56.18002(a).

   A fatal accident occurred on May 22, 2023, when the ground collapsed beneath a haul truck causing it to overturn backwards, coming to rest on the side of a manufactured sand stockpile. The mine operator did not conduct an adequate workplace examination to identify the unstable ground of the manufactured sand stockpile prior to dumping activities beginning. The accident investigation team determined this condition existed over the last several months prior to the accident. The workplace examination records for two weeks prior to the accident did not identify this hazardous condition. The mine operator engaged in aggravated conduct constituting more than ordinary negligence because the superintendent who had driven through the area earlier in the shift and made no effort to mitigate the conditions. This violation is an unwarrantable failure to comply with a mandatory standard.

5. A 104(a) citation was issued to Central Stone Company for a violation of 30 CFR 56.14131(a).

   A fatal accident occurred on May 22, 2023, when the ground collapsed beneath a haul truck causing it to overturn backwards, coming to rest at the base of a manufactured sand stockpile. The haul truck operator was not wearing a seat belt at the time of the accident. The mine operator did not ensure that mobile equipment operators wore seat belts.

APPENDIX A – Accident Scene



APPENDIX B – Persons Participating in the Investigation

Central Stone Company

Ryan Lair	Superintendent
Johnathan Watson	Assistant Plant Superintendent
Anthony Harr	Plant Utility Man
Ellie Lugena	Scale Operator

Leo Olaughlin Trucking

Rodman Chacon	Customer Truck Driver

Mine Safety and Health Administration

Nicholas Dunne	Mine Safety and Health Inspector
Randal Hill	Mine Safety and Health Inspector
David Brown	Mine Safety and Health Training Specialist

APPENDIX C – Edge of Manufactured Sand Stockpile at Location where Ground Collapsed

APPENDIX D – Base of the Manufactured Sand Stockpile